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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/541,906	07/12/2005	Derek Geoffrey Finch	033963-015	6242

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EXAMINER	
LY, HIEN QUANG	
ART UNIT	PAPER NUMBER
3662	

MAIL DATE	DELIVERY MODE
08/20/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/541,906	FINCH ET AL.	
	Examiner	Art Unit	
	Hien Ly	3662	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 July 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *17-28 and 33-36* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *17-28 and 33-36* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *01/17/2007*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Receipt is acknowledged of applicant's amendment filed on July 09, 2007. Claims **17-28 and 33-36** are pending and an action on the merits is as follows.

Applicant's arguments with respect to claims **17-28 and 33-36** have been considered but are moot in view of the new grounds of rejection.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims **17, 19, and 33** are rejected under 35 U.S.C. 102(b) as being anticipated by **Carrara ('4,972,194)**.

Regarding **claims 17, 19, and 33**, Carrara discloses a method of extracting a radial velocity characteristic of a target from one or more coherent radiation pulse bursts comprising:

a) Receiving radiation echo returns of the pulse bursts from a remote scene. See column 1, line 17-21 (" wave received after reflection form moving obstacles").

b) Processing the echo returns into in-phase (I) and quadrature (Q) components. See FIG.2 (" I, Q components 18"). Column 7, line 1-3.

c) Measuring returns at intervals to provide sampled data. See Fig. 2 (sampling and coding circuit 11, and period of repetitions"). Column 7, line 1-3.

d) Applying a predetermined function to the I-Q returns. See column 7, line 9-10 (" rejection zone").

e) Modifying the predetermined function to match the sampled data as a function of velocity. See column 7, line 9-10 (" rejection zone").

f) Determining the target radial velocity in dependence upon said modification step of the predetermined function. See column 4, line 37-50.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims **17, 19, 20-26, 28, and 33-35** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Carrara** in view of **Togashi ('4,809,002)**.

Regarding **claims 17, 19, and 33**, Carrara previously discussed as seen in paragraph 2. In the event, Carrara fails to disclose the steps of applying a predetermined function to the I-Q returns and modifying the predetermined function to match the sampled data as a function of velocity.

Togashi discloses the steps of applying a predetermined function to the I-Q returns and modifying the predetermined function to match the sampled data as a function of frequency. See FIG. 2 (" Generators 18-20 and correctors 13-14"). See column 7, line 63-66 and column 8, lines 10-13, 39-46 (" f_d is related to moving clutter velocity").

It would have been obvious to modify Carrara to include a predetermined function to the I-Q returns and modifying the predetermined function to match the sampled data as a function of frequency in teaching of Togashi in order to indicate a moving target.

Regarding **claim 20**, Carrara fails to disclose the model of clutter return as a low order polynomial function in I and Q.

Togashi discloses the model of clutter return as a low order polynomial function in I and Q. See column 6, line 13-20, equation 11 ("The I and Q channel components have constant, $2E_2A_0\cos\theta_0$ respectively and $2E_2A_0\sin\theta_0$").

It would have been obvious to modify Carrara to include the model of clutter return as a low order polynomial function in I and Q in teaching of Togashi in order to indicate a moving target.

Regarding **claim 21**, Carrara discloses the step of extracting amplitude from the sample data. See column 4, line 50-55.

Regarding **claim 22**, Carrara discloses the step of extracting range ambiguity from the sample data. See column 7, line 11-14 (" range cells").

Regarding **claim 23**, Carrara discloses the step of extracting target azimuth form the sampled data. See column 7, line 45-49 (" circuits 24-25 and arc tangent r_i ").

It is well known to one skilled in the art that azimuth is a mathematical concept defines as a degree or phase.

Regarding **claims 24-26 and 34-35**, Carrara inherently teaches the echo returns measured at non-equi-spaced intervals, the pulse bursts transmitted at a frequency which changed between successive pulses and at non-constant pulse repetition internal bursts. See column 4, line 10-16.

The alteration of transmission frequency between bursts is well known to one skilled in the art as non-equi-spaced intervals and non-constant pulse repetition internal bursts.

Regarding **claims 28**, Carrara fails to disclose the step of carrying out conventional Moving Target Indication/Moving Target Detection filtering and target detection before applying a predetermined function, as in step (d), to the I-Q returns in which a target was detected.

However, Togashi discloses the step of carrying out conventional Moving Target Indication/Moving Target Detection filtering and target detection before applying a predetermined function. Column 4, line 54-64 (" PRF MTI system and a clutter-locking MTI").

It would have been obvious to modify Carrara to include the step of carrying out conventional Moving Target Indication/Moving Target Detection filtering and target

detection before applying a predetermined function in teaching of Togashi in order to indicate a moving target.

3. Claim **18** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Carrara** in view of **Borth ('4,887,050)**.

Regarding **claim 18**, Carrara fails to disclose step (d) comprises fitting a curve to the I-Q returns and step (e) comprises optimising the fit to the sampled data as a function of velocity in a least squares fashion.

However, Borth discloses step (d) comprises fitting a curve to the I-Q returns and step (e) comprises optimising the fit to the sampled data as a function of velocity in a least squares fashion. See column 7, lines 27-41 (" a least square linear fit").

It is well known to one skilled in the art that velocity is calculated from wavelength and frequency.

It would have been obvious to modify Carrara to include step (d) comprises fitting a curve to the I-Q returns and step (e) comprises optimising the fit to the sampled data as a function of velocity in a least squares fashion in teaching of Borth in order to efficiently rapidly correct for frequency errors between a received signal and the tuned frequency.

4. Claims **27 and 36** are rejected under 35 U.S.C. 103(a) as being unpatentable over Carrara as applied to claims **24 and 33** above, and further in view of **Okurowski ('5,225,839)**.

Regarding claims **27 and 36**, Carrara fails to disclose the pulse bursts as internally coherent and mutually incoherent.

However, Okurowski discloses the pulse bursts as internally coherent and mutually incoherent. See column 13, line 23-36 (" the exciter 32, coherent pulses, and non-coherent pulses").

It would have been obvious to modify Carrara to include the pulse bursts as internally coherent and mutually incoherent in teaching of Okurowski in order to efficiently capture a multiple frequency spot jammer through out the dwell time.

Response to Arguments

Applicant's arguments filed on July 09, 2007 have been fully considered but they are not persuasive.

Regarding applicant's argument for claims **17-28 and 33-36**, applicant's arguments are moot in view of the new grounds rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hien Ly whose telephone number is 571-270-1326. The examiner can normally be reached on M-F: 7:00am - 4:00pm (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, THOMAS H. TARCZA can be reached on 571-272-6979. The fax phone

number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Patent Examiner

Hien Ly

August 9, 2007

THOMAS H. TARCZA
SUPERVISORY PATENT EXAMINER
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